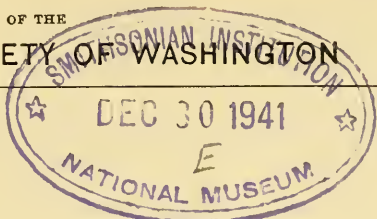


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TWO NEW SPECIES OF *ELEUTHERODACTYLUS*
FROM GUATEMALA.

BY L. C. STUART.

In examining specimens of the genus *Eleutherodactylus* collected in Guatemala in 1940, I found two species which appear to be undescribed. Inasmuch as both originated from the Sierra de los Cuchumatanes—Alta Verapaz mountain chain, known for its high degree of endemism, I have overcome my hesitancy to further multiply Eleutherodactylid names and herein describe them.

I have the honor of dedicating the first to General Roderico Anzueto V., Minister of Agriculture of the Republic of Guatemala, whose many courtesies to me greatly facilitated my investigations in that country. It will be known as

***Eleutherodactylus anzueto*, new species.**

Holotype.—A male, University of Michigan, Museum of Zoology No. 89160. Collected July 12, 1940, by L. C. Stuart.

Type locality.—Floor of oak forest about 2 km. north of Nebaj, El Quiché, Guatemala. Altitude, about 1985 m.

Diagnosis.—An *Eleutherodactylus* possibly representing an upland relative of *E. rostralis* (Werner) from which it differs by its complete absence of webs between toes and tarsal fold, a shorter leg, and by its possession of a row of outer tarsal tubercles.

Description.—Vomerine teeth in two elongate rows extending from the posterior level of the choanae obliquely posteriorly. Dorsum smooth anteriorly, slightly pustular posteriorly. Belly entirely smooth; ventral disc conspicuous. Head as broad as body, somewhat lanciform in outline; sides sloping outwards; loreal region plane. Nostrils very near tip of snout; eyes moderately large; eyelids slightly tuberculate; tympanum vertically oval, its greatest diameter about two-thirds the width of the eye. A fold from the corner of the eye posteriorly above the tympanum, dividing to send one branch downwards behind the tympanum and another posteri-

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only to above arm insertions. A low mid-dorsal fold from the nape to the anus and a >-shaped fold on either side of the mid-dorsal fold.

Arms moderately stout; fingers free; comparative finger lengths, II-I = IV-III. Discs small; subarticular tubercles prominent; three large basal palmar tubercles. Legs slender; heel reaching to the tip of the snout. Toes not webbed; discs about size of those of fingers; subarticular tubercles prominent; a large inner and smaller outer metatarsal tubercle. No tarsal fold but a row of inconspicuous tubercles along the outer side of the tarsus. Upper, posterior thighs tuberculate.

Dorsum light brown, without markings save for a dark smudge between the eyes and a black spot at the apices of the >-shaped dorsal folds. Arms and legs also light brown above. The legs cross-banded with darker brown. A small black spot on the upper surface of the fore-arm. The canthus demarked by a dark line which diffuses ventrally onto the cheeks. A dark line follows the postorbital fold. Undersurfaces brownish white, the chin and throat faintly marbled with darker shades; the under surfaces of the legs peppered with brown; a broad dark line from the heel to the base of the fourth toe; a small black anal-patch.

Head length 10 mm.	Head width 10.5 mm.
Head-body length 23 mm.	Arm to wrist 7 mm.
Leg to heel 23.5 mm.	Heel to tip of toe IV 16.5 mm.
Eye diameter 2.3 mm.	Tympanum diameter 1.5 mm.

Paratypes.—University of Michigan, Museum of Zoology No. 89911, collected with the holotype, and Nos. 89912-3 collected in the cloud forest above Finca Chichén (11 km. [straight line] south and slightly east of Cobán), Alta Verapaz, Guatemala, altitude about 1600 m.

Variation.—The paratypes are almost identical to the holotype in all particulars except that the row of tubercles on the tarsi are more conspicuous. In the specimens from the Alta Verapaz the undersurfaces are more heavily stippled with dark than in those from El Quiché. In the paratypes there is a conspicuous, dark knee patch, barely visible in the holotype. The life color recorded in my field notes is the same as that described from the preserved holotype.

Habits.—This species is apparently, despite its ventral disc, a ground form. In actions it reminds one of *E. rostralis* (Werner). It seems to be restricted to the "cloud forest" zone. At Finca Chichén it was in the cloud forest proper, while at Nebaj, a local rain-shadow valley, it occurred in a dry counterpart of the wetter cloud forest.

Range.—Restricted, so far as is known, to the mountain mass of the Alta Verapaz and the eastern Sierra de los Cuchumatanes of Guatemala.

Remarks.—I have compared the above to *E. rostralis* (Werner). Dunn and Emelen¹ have considered that species synonymous with *E. gollmeri* (Peters). While I believe the relationship to be extremely close, material from Honduras and Guatemala indicates that it is a longer-legged species than its southern relative.

¹Dunn, E. R. and Emelen, J. P., Jr. "Reptiles and Amphibians from Honduras," *Proc. Acad. Nat. Sci. Phila.*, LXXXIV, 1932 : 24.

Though showing many differences from *E. rostralis*, I do, nevertheless, consider *E. anzuetoi* an upland member of the *gollmeri* complex. It is entirely possible, however, that the species may fit into the *mexicanus* group recently revised by Taylor.² From these frogs it differs primarily in the absence of an inguinal gland.

The second species I offer to Xucaneb, the mountain king of the Alta Verapaz, on whose domain I trespassed to collect,

***Eleutherodactylus xucanebi*, sp. nov.**

Holotype.—An adult female, University of Michigan, Museum of Zoology No. 89914. Collected March 25, 1940, by L. C. Stuart.

Type locality.—Cloud forest above Finca Volcán (49 kilometers [straight line] east of Cobán), Alta Verapaz, Guatemala; altitude about 1300 meters.

Diagnosis.—An *Eleutherodactylus* with free fingers and almost free toes close to *E. spatulatus* Smith from which it differs in possessing smoother skin; more slender snout, larger tympanum, smaller finger discs, and absence of a tarsal fold.

Description.—Vomerine teeth in two elongate patches extending from opposite the middle of the choanae posteriorly and medially, almost meeting at their posterior extremities. Dorsum smooth except for a slight granulation on the nape and shoulders; belly entirely smooth. Head about as broad as body; oval in outline; sides sloping sharply outwards; loreal region almost plane. Nostrils almost terminal. Eyes large; upper eyelid prominent and strongly tuberculate. Tympanum almost circular; about one-half the diameter of the eye. A low fold extending from posterior corner of eye posteriorly above tympanum and terminating just posterior to mid-point of tympanum. Several enlarged tubercles postero-ventral to the tympanum.

Arms long and slender. Fingers completely free; comparative lengths, I-II-IV-III. Discs of fingers II, III, and IV large, bilobed and subtriangular in outline; that of finger III exactly equals the diameter of tympanum. Subarticular tubercles large and cone-shaped. Two enlarged, basal, palmar tubercles and another on inside of basal phalange of thumb.

Legs slender; heel not quite reaching the tip of snout. Toes with mere vestige of web. Discs much smaller than those of fingers. Subarticular tubercles like those of fingers. Foot free of tubercles except for larger inner and small but conspicuous outer metatarsal tubercles. No trace of a tarsal fold. Except for a small tuberculate patch on the posterior face of the upper thighs, the legs are smooth.

Pattern above mottled gray and brown, difficult of description. Top of head brown; a darker, broad stripe between eyes. Snout lighter. Loreal region light brown with broken vertical dark bars. On back above shoulder a W-shaped dark figure. Mid-dorsum gray, spotted with brown. Lateral to this light area on either side, an elongate, irregular brown-mottled, dark, patch. Sides mottled brown and gray. A poorly-defined dark streak from posterior corner of eye, across top of tympanum, to above arm insertions.

² Taylor, E. H., "Some Mexican Frogs," *Proc. Biol. Soc. Wash.*, 54, 1941 : 91-94.

Arms and legs mottled brown and gray with indistinct dark brown bars. Underparts gray, heavily peppered with brown. In life the darker color of the dorsum is an orange-brown.

Head length 11.8 mm.

Head width 11 mm.

Head-body length 33 mm.

Arm to wrist 11.7 mm.

Leg to heel 30 mm.

Heel to tip of toe IV 25 mm.

Eye diameter 4.2 mm.

Tympanum diameter 1.9 mm.

Range.—Known only from the type locality but probably generally distributed through the cloud forest of the Alta Verapaz.

Habits.—The above specimen was found on the ground in the cloud forest at the very height of the dry season. It is a female with well-developed eggs in the body cavity.

Remarks.—Through the courtesy of Dr. E. H. Taylor I have been able to compare this specimen with a topotypic female *E. spatulatus*. Although the two are apparently rather closely related they are quite distinct as noted in the diagnosis. From *E. alfredi* Boulenger, which it resembles superficially, it differs in possessing a narrow head, relatively small finger discs, shorter legs, and a wholly different pattern.

Günther³ described and figured specimens from Costa Rica and Alta Verapaz which he referred to *E. brocchii* (Boulenger). Whereas his description very probably agreed with the specimens before him, it certainly did not agree with Boulenger's original description (in Brocchi⁴). The greatest discrepancies are in the nature of the vomerine teeth—two triangular groups in Boulenger, and two short transverse series in Günther—and in the size of the digital discs—moderately developed according to Boulenger and well developed (figured large) in Günther. Though many of Brocchi's figures are notoriously bad, by no conceivable stretch of the imagination could the same species produce two such diverse sketches as those of Günther and Brocchi.

Inasmuch as *brocchii* was described from Guatemala, it is quite probable that Günther referred his Verapaz specimen to typical *brocchii* and the Costa Rican specimen to *brocchii* var. Dr. Dunn informs me that the latter is *E. melanostictus* (Cope), and through his courtesy I have examined specimens from Günther's locality. The former I believe to be the same species as that now before me. Though at present I can not be certain, I believe that my Alta Verapaz collections contain typical *brocchii*. These, to be published upon at a later date, are not even remotely connected to this new species.

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³ Günther, A., "Reptilia and Batrachia," *Biol. Cent.-Amer.*, 1885-1902 : 236-7, pl. 68, figs. A and B.

⁴ Brocchi, P., "Etudes sur les batraciens," *Miss. Sci. Mex.*, 3, 2, 1882 : 60-1, pl. 15, figs. 3.